

AMPE17 RESERVOIR ENGINEERING-II

UNIT-1 FLUID CHARACTERISTICS

- 1.1 Introduction to the production system.
- 1.2 Characteristics of the reservoir rocks-Porosity, Permeability- cross plots.
- 1.3 Fluid saturation, capillary pressure.

UNIT-2 MULTI PHASE FLOW

- 2.1 Relative permeability-fractional flow.
- 2.2 Well performance- inflow performance, tubing performance.

UNIT-3 WELL TESTING

- 3.1 Basic well testing theory- oil well testing: gas well testing- Practical well testing- Gas field reservoir engineering- Fluid phase behavior- Gas in place volumes and recovery estimations.
- 3.2 Reservoir testing and performance analysis: well test- drillstem tests (DST); production tests, pressure tests on gas wells; formation interval testing and other well testing techniques.
- 3.3 Coning of water and gas; effects of partial penetration.

UNIT-4 MATERIAL BALANCE TECHNIQUES

- 4.1 Production forecasting- Gas condensate reservoir engineering
- 4.2 Fluid phase behaviour development- options.

UNIT-5 WELL PERFORMANCE

- 5.1 Reservoir management and simulation- reservoir data acquisition- Reservoir simulation.
- 5.2 Mathematical basis of bottom hole analysis;
- 5.3 Differential equations for radial flow in a porous medium.
- 5.4 Pressure draw down and build up analysis.

References Books:

1. Craft B.C. and Hawkins M.P. "Applied Petroleum reservoir engineering" 2-nd Edition
Prentice hall – 1991.